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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,117	07/31/2003	Goichi Katayama	FS.20113US0A	7749

20995 7590 06/13/2005

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EXAMINER

Chang, Ching

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/631,117	KATAYAMA, GOICHI	
	Examiner	Art Unit	
	Ching Chang	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7 and 12 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-11, 13-15, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/07, 03/21/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/17/2005 has been entered. Claim 16 is cancelled as requested.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. ***Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.***

More specifically, " the outer area " in claim 19 lacks an antecedent basis, therefore it renders the claim indefinite.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

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granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. ***Claims 1-4, 8-11, 13-14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukuda et al. (US Patent No. 6,582,262).***

Fukuda discloses an internal combustion engine (2) comprising an engine body (21, 22, 23, 24) having at least an outer surface that defines an outer area next to thereto, a cylinder head member (23) which forms at least a portion of a combustion chamber (27), an output shaft (3) extending generally vertically through the engine body, an air intake system (See Col. 5, line 64 through Col. 6, line 54) arranged to deliver air to a combustion chamber (27) of the engine, the air intake system having an intake valve (31a, 31b) movable between a closed position at which the air is not allowed to move to the combustion chamber and an open position at which the air is allowed to move to the combustion chamber, an exhaust system arranged to route exhaust gases in the combustion chamber to an external location of the engine, the

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exhaust system having an exhaust valve (33a, 33b) movable between a closed position at which the exhaust gases are not allowed to move to the external location and an open position at which the exhaust gases are allowed to move to the external location (See Col. 5, line 50 through line 63), at least one camshaft (32a, 32b, 34a, 34b) actuating the intake valve or the exhaust valve, the camshaft extending generally vertically through the engine body and toward the outer area beyond the outer surface, a drive mechanism (51) arranged to drive the camshaft, at least a portion of the drive mechanism being disposed in the outer area, a hydraulically operated change mechanism (85a, 85b) arranged to change an angular position of the camshaft relative to the output shaft, and a control valve unit (84) configured to control the change mechanism (See Col. 9, line 37 through Col. 11, line 44), the control valve unit comprising an actuator (115) and a valve member, the valve member at least in part being disposed within the outer area (See Figs. 1-2, 4-5); wherein the control valve unit is positioned generally at the same level as the drive mechanism from the outer surface; wherein the drive mechanism comprises a flexible transmitter (56) extends around the output shaft and the camshaft such that the output shaft drives the camshaft through the transmitter, the control unit is disposed next to the transmitter, the control valve unit is positioned generally at the same level as the transmitter; wherein the transmitter forms a loop, the control valve unit is disposed out of the loop (See Fig 4); the said engine additionally comprising a fluid passage through which a hydraulic working fluid moves between the control valve unit and the change mechanism, the engine body having a member (23) defining the outer surface, the member internally forms at least a portion

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of the fluid passage (See Figs. 5-7); wherein the camshaft actuates the intake valve; wherein the engine powers a marine propulsion device (13, 14, 15, 16).

Fukuda further discloses " the valve timing controlling mechanism 84..., may be disposed on the outer surface of the cylinder head 23 " (See Col. 10, line 56 through line 63). Accordingly, with regard to section 103(a), it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the teaching from the Fukuda reference to dispose the control valve unit on the cylinder head member, the said unit at least in part being disposed within a top area that extends generally above the top surface of the said cylinder head member (part of the engine body), since the use thereof would provide a more compact engine, with a better actuating response from the valve timing controlling mechanism.

6. ***Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukuda et al. (US Patent 6,582,262).***

Fukuda discloses an internal combustion engine (2) comprising an engine body (21, 22, 23, 24) comprising a cylinder head member (23) that forms a portion of a combustion chamber (27), the cylinder head member having an outer surface, a generally vertically extending output shaft (3) extending through the engine body, an air intake system (See Col. 5, line 64 through Col. 6, line 54) arranged to deliver air to a combustion chamber (27) of the engine, the air intake system having an intake valve (31a, 31b) movable between a closed position and an open position, an exhaust system

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arranged to route exhaust gases in the combustion chamber to an external location of the engine, the exhaust system having an exhaust valve (33a, 33b) movable between a closed position and an open position (See Col. 5, line 50 through line 63), at least generally vertically extending camshaft (32a, 32b, 34a, 34b) actuating the intake valve or the exhaust valve, the camshaft extending generally through the engine body and toward an outer area (next thereto the outer surface) beyond the outer surface, a drive mechanism (51) arranged to drive the camshaft, at least a portion of the drive mechanism being disposed in the outer area, a hydraulically operated change mechanism (85a, 85b) arranged to change an angular position of the camshaft relative to the output shaft, and a control valve unit (84) configured to control the change mechanism (See Col. 9, line 37 through Col. 11, line 44), the control valve unit comprising an actuator (115) and a valve member, the valve member being disposed along the outer surface (See Figs. 1-2, 5).

Fukuda further discloses " the valve timing controlling mechanism 84..., may be disposed on the outer surface of the cylinder head 23 " (See Col. 10, line 56 through line 63). Accordingly, with regard to section 103(a), it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the teaching from the Fukuda reference to dispose the control valve unit on the cylinder head member, and have the valve member disposed above the outer surface of the said head member, since the use thereof would provide a more compact engine, with a better actuating response from the valve timing controlling mechanism.

7. ***Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (as applied to claim 15 above) in view of Ogawa (US Patent 6,450,137).***

Fukuda discloses the invention as recited above, however, fails to disclose the control valve unit comprising a spool valve.

The patent to Ogawa on the other hand, teaches that it is conventional in the variable valve timing system art, to utilize a control valve 100, comprising an axially movable spool valve 104.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the control valve having an axially movable spool valve as taught by Ogawa in the Fukuda device, since the use thereof would provide a more compact and reliable engine.

Allowable Subject Matter

8. Claims 5-7, and 12 are allowed.

9. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed on 03/17/05 have been fully considered but they are not persuasive.

More specifically, the Examiner disagrees with the Attorney's Remarks " With respect to Fukuda et al., this reference disclosed a valve timing adjusting mechanism 84, which is entirely positioned on the lower side of a ceiling surface of the head cover 24 or on the side of the cylinder head 23. See Col. 10, lines 60-63. " (See Page 7, Attorney's Comments). As a matter of fact, the Fukuda reference teaches " The valve timing controlling mechanism 84 is not necessarily disposed on the head cover 24, but it may be disposed on the outer surface of the cylinder 23 " (See Col. 10, line 60 through line 63).

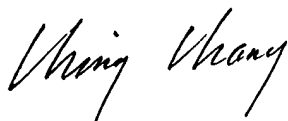
Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION
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